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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,099

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Susanne Evans

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EXAMINER

MOK, ALEX W

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

11/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,099	Applicant(s) EVANS ET AL.	
	Examiner ALEX W. MOK	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/31/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment

1. Acknowledgement is made of Amendment filed July 20, 2009.

Claim Objections

2. Claims 28 and 29 are objected to because of the following informalities: in the third and fifth lines of claim 28, the terms "the connection" and "the ring magnet" do not have proper antecedent basis in the claim; in the fourth line of claim 28, the term "**adsorbs**" should be changed to "**absorbs**" for better comprehension of the claim; and in the second line of claim 29, the term "the yielding region" does not have proper antecedent basis in the claim;. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 16, 18, 19, 21, 25, 26, 30, 31, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Weiland (German Patent Document No.: DE 3021607).

For claim 16, Weiland teaches the rotor including a rotor shaft (reference numeral 3, figures 1, 2), a hollow-cylindrical magnet element (reference numeral 1), and at least one covering disk (reference numeral 5), the improvement wherein the at least

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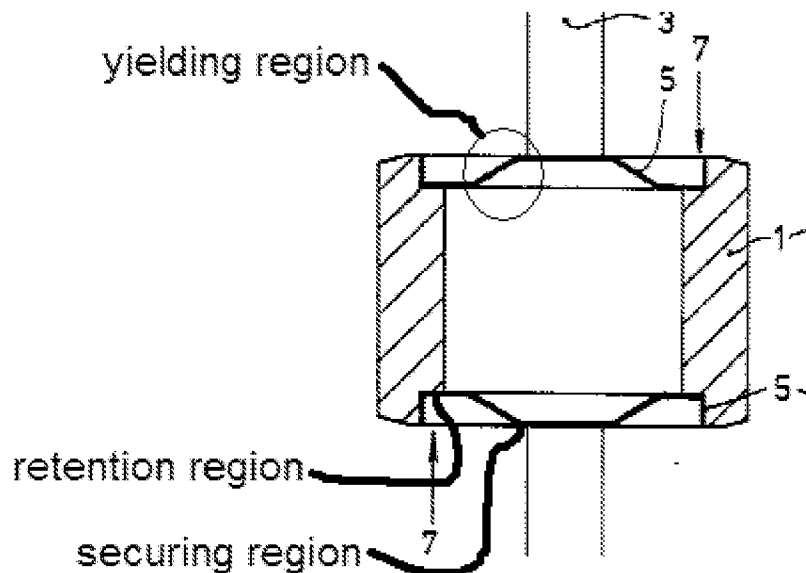
one covering disk is secured to the rotor shaft (see figures 1, 2), and wherein the magnet element has a first axial end secured to the at least one covering disk (figures 1, 2).

For claim 18, Weiland teaches a first covering disk and a second covering disk (reference numeral 5, see figure 1), the first and second covering disks being secured to the rotor shaft (reference numeral 3), and the magnet element being secured on its first axial end to the first covering disk and on its second axial end to the second covering disk (figure 1).

For claim 19, Weiland teaches the magnet element being secured to at least one of the covering disk by means of an adhesive (see translation, page 2, tenth paragraph).

For claim 21, Weiland teaches the magnet element being secured to at least one of the covering disk by means of an adhesive as explained for claim 19.

For claim 25, Weiland teaches each said at least one covering disk comprising a yielding region (see figure 1, and figure below).



For claim 26, the yielding region as explained for claim 25 above can constitute a bead extending in the circumferential direction.

For claims 30 and 31, the yielding region as disclosed by Weiland can be considered to be embodied as a connecting region, disposed between a securing region and a retention region for the magnet element, and wherein the connecting region is inclined to the securing region (see figure above).

For claim 35, since the reference of Weiland already discloses the rotor as explained for claim 16, then this invention can be applied to any type of machine, such as an electrical machine.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland (German Patent Document No.: DE 3021607) as applied to claims 16 and 25 above, and further in view of Advolotkin et al. (US Patent No.: 4472650).

For claim 28, Weiland teaches the claimed invention including the yielding region as explained for claim 25, but does not specifically disclose the yielding region comprising a region that is substantially U-shaped in section and is positioned between the connection to the shaft and the connection to the magnet element, so that the U-shaped yielding region adsorbs any difference in expansion between the rotor shaft and the ring magnet. Advolotkin et al. teach a rotor with a U-shaped yielding region between the connection to the shaft and the connection to the magnet element (reference numeral 9, figure 6). It would have been obvious to have this U-shaped yielding region as disclosed in Advolotkin et al. in the covering disk of Weiland since Advolotkin et al. use this technique for eliminating the stress caused by the tension in the device (see column 5, lines 7-12), and a person of ordinary skill can apply this configuration for the purpose of relieving thermal expansion between the magnet and the shaft.

7. Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland as applied to claim 16 above, and further in view of Sato et al. (European Patent Document No.: EP 1075073).

For claim 17, Weiland teaches the claimed invention except for the second axial end of the magnet element resting on a shaft shoulder of the rotor shaft. Sato et al. discloses a cylindrical magnet that is resting on the shoulder of the shaft (reference numerals 18, 28, see figure 5), and it would have been obvious to include the magnet resting on the shoulder of the shaft as disclosed by Sato et al. in the invention of Weiland for the purpose of improving the stability of the rotor.

For claim 20, Weiland teaches the magnet element being secured to at least one of the covering disk by means of an adhesive as explained above for claim 19.

8. Claims 22, 27, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland as applied to claim 16 and 25 above, and further in view of Beeh (US Patent No.: 1996946).

For claim 22, Weiland teaches the claimed invention except for each of the at least one covering disk comprising at least one radially extending slit. Beeh teaches end plates (reference numerals 5, 6, figures 1-3) having slits extending radially (reference numeral 11). It would have been obvious to have the slit configuration as disclosed by Beeh in the invention of Weiland since this technique would provide a person of ordinary skill in the art with a way of giving elasticity to the disks in the radial and axial directions.

For claim 27, Weiland teaches the yielding region comprising a bead extending in the circumferential direction as explained for claim 26 above.

For claim 32, Weiland teaches the claimed invention except for the slit with a length that extends from the outer circumference of the disk to the yielding region. Beeh teaches the slits as explained above for claim 22, and Beeh teaches the slits extending from the outer circumference to the inner region (see figure 1). It would have been obvious to have this slit with a length that extends from the outer circumference of the covering disk to the yielding region as disclosed by Beeh in the invention of Weiland since this would give a person of ordinary skill a way of providing compensation in the radial and axial ends.

9. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland as applied to claim 16 above, and further in view of Nagate et al. (US Patent No.: 5508576).

For claims 23 and 24, Weiland teaches the claimed invention except for the radially extending slits of different lengths, with first and second lengths for the radial slits. Having slits of different lengths is a general skill that is already known in the art at the time the invention was made, as exhibited by Nagate et al. (see figure 6), and it would have been obvious to modify these slits of Nagate et al. to have different lengths and have a first length be greater than a second length in the inventions of Weiland and Beeh, as this would provide a person of ordinary skill with a way of further absorbing the thermal expansions of the components.

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10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland and Beeh as applied to claim 22 above, and further in view of Advolotkin et al. (US Patent No.: 4472650).

For claim 29, Weiland and Beeh teach the claimed invention including the yielding region as explained for claim 25 above, but does not specifically disclose the yielding region comprising a region that is substantially U-shaped in section. Advolotkin et al. teach a rotor with a U-shaped yielding region (reference numeral 9, figure 6). It would have been obvious to have this U-shaped yielding region as disclosed in Advolotkin et al. in the covering disk of Weiland since Advolotkin et al. use this technique for eliminating the stress caused by the tension in the device (see column 5, lines 7-12), and a person of ordinary skill can apply this configuration for the purpose of relieving thermal expansion between the magnet and the shaft.

11. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland as applied to claim 16 above, and further in view of Sato et al. (European Patent Document No.: EP 1075073) and Advolotkin et al. (US Patent No.: 4472650).

For claim 33, Weiland teaches the claimed invention except for the magnet element being a rare earth element, and a carrier body disposed inside the magnet element which the carrier body is spaced apart from the magnet element by a very small gap in the radial direction and wherein the carrier body is spaced apart from the covering disks in the axial direction by another very small gap, and wherein there is no material in the gaps so that the gaps can be made very small. Sato et al. teach the

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magnet containing rare earth elements (see paragraph [0032]), and Advolotkin et al. disclose a carrier body (reference numeral 2, figure 1) disposed inside the magnet (reference numeral 6) and spaced apart from the magnet by a small gap in the radial direction (see figure 1), and the carrier body spaced apart from the covering disks (reference numeral 4) in the axial direction by another small gap (see figure 1). It would have been obvious for a person of ordinary skill to have the rare earth elements in the magnet as disclosed by Sato et al. and have the carrier body and the gaps between the carrier body, magnet, and the covering disks as disclosed by Advolotkin et al. in the invention of Weiland, since this would provide a person of ordinary skill with a way of minimizing magnetic losses.

12. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland as applied to claim 16 above, and further in view of Denk et al. (US Patent No.: 4667123).

For claim 34, Weiland teaches the claimed invention except for a cylindrical guard tube surrounding the magnet element. Denk et al. teach a cylinder (reference numeral 70) for the magnets on the rotor (see figure 4). It would have been obvious to include this tube as disclosed by Denk et al. in the invention of Weiland since Denk et al. uses this technique for protecting the magnets (see column 5, lines 14-19), i.e. avoiding damage to the magnets.

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13. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiland (German Patent Document No.: DE 3021607), and further in view of Beeh (US Patent No.: 1996946).

For claim 36, Weiland teaches the rotor including a rotor shaft (reference numeral 3, figures 1, 2), a hollow-cylindrical magnet element (reference numeral 1), and at least one covering disk (reference numeral 5), the improvement wherein the at least one covering disk is secured to the rotor shaft (see figures 1, 2), and wherein the magnet element has a first axial end secured to the at least one covering disk (figures 1, 2), wherein each said at least one covering disk comprising a yielding region (see figure 1, and figure above for claim 25), and wherein the yielding region as disclosed by Weiland can be considered to be embodied as a connecting region, disposed between a securing region and a retention region for the magnet element, and wherein the connecting region is inclined to the securing region (see figure above for claim 31) for providing both axial and radial yielding. Weiland does not specifically disclose each of said at least one covering disk comprising at least one slit with a length that extends from the outer circumference of the covering disk to the yielding region.

Beeh teaches end plates (reference numerals 5, 6, figures 1-3) having slits extending radially (reference numeral 11), and Beeh teaches the slits extending from the outer circumference to the inner region (see figure 1).

It would have been obvious to have this slit with a length that extends from the outer circumference of the covering disk to the yielding region as disclosed by Beeh in

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the invention of Weiland since this would give a person of ordinary skill a way of providing compensation in the radial and axial ends.

Response to Arguments

14. Applicant's arguments with respect to claims 17 and 23-26 filed July 20, 2009 have been fully considered but they are not persuasive. In response to Sato et al. not disclosing a shoulder on the shaft, the wheel 28 as disclosed by Sato et al. can constitute the shoulder of the shaft as this component is part of the shaft (see paragraph [0042]), therefore this claimed feature of claim 17 is disclosed by the prior art.

In response to the prior art not showing slits of different lengths as recited in claims 23 and 24, modifying the lengths of components such as slits to have different lengths is an ordinary skill that was already known in the art as exhibited by Nagate et al. (see present action above), and this would provide a skilled person in the art with a way of further absorbing thermal expansion of the rotor.

In response to the prior art not teaching the yielding region or the yielding region having a bead, applicant has not specifically pointed out how the prior art references do not teach the claimed invention. Nevertheless, the reference of Weiland still teaches the claimed yielding region as explained above in the present action.

In response to Weiland pointing away from elastic covering disks, Weiland still teaches the covering disk, shaft, and the magnet element as claimed by the applicant, therefore teaching the applicants' invention, regardless of whether or not it discloses elastic disks. Also the radial slits of Beeh can still be applied to Weiland, regardless of

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whether the magnets of Beeh are different than the magnets of Weiland, as the end plate of Beeh can still be used for the magnets of Weiland and still function as intended by the applicant.

Applicant's arguments with respect to claims 33 and 36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX W. MOK whose telephone number is (571)272-9084. The examiner can normally be reached on 7:30-5:00 Eastern Time, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen P. Leung can be reached on (571) 272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/
Supervisory Patent Examiner, Art Unit 2834

/A. W. M./
Examiner, Art Unit 2834